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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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EXAMINER	
TRAN, HIEN THI	
ART UNIT	PAPER NUMBER
1764	

DATE MAILED: 02/18/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	09/897,453	MAUNULA, TEUVO	
	Examiner	Art Unit	
	Hien Tran	1764	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *24 November 2004*.

2a)☒ This action is **FINAL**. 2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1,3-11,13,21 and 27-32* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1, 3-11, 13, 21, 27-32* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☐ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

DETAILED ACTION

Claim Rejections - 35 USC § 112

1. The following is a quotation of the second paragraph of 35 U.S.C. 112:

> The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

2. Claims 1, 3-11, 13, 21, 27-32 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

In claim 1, line 5 it is unclear as to what applicant is attempting to recite since the use of "consisting of" (close language) in combination with "including" (open language) causes ambiguity, e.g. it is unclear as to whether other elements can be included based on the open language of "including", etc.; in lines 11-12 it is unclear as to whether the three units now become two units since the NOx adsorption catalyst and the oxidation catalyst are combined into one structure.

Claim 5 is an improper dependent claim since the claim which depends from a claim which "consists of" recited elements cannot add an additional element. See claims 6, 7, 10, 31-32 likewise.

In claim 8, it is unclear as to whether the three units now become only one unit since the NOx adsorption catalyst, the oxidation catalyst and the particle separator are combined into one structure. See claims 27-28 likewise

In claim 11, it is unclear as to what structural limitation applicant is attempting to recite, the regeneration of "sulfates", "nitrates", and "particles", "lean mixture" and "rich mixture" have no clear antecedent basis. Note that the lean and rich mixing ratios are merely referred to in the

preamble of the claim and are not part of the apparatus. Furthermore, claim 11 is an improper dependent claim as it fails to further limit the subject matter of the previous claims. Apparently, claim 11 merely recites process limitation and therefore is not structurally further limiting.

Claim Rejections - 35 USC § 103

3. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

4. The factual inquiries set forth in *Graham* **v.** *John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

5. Claim 1, 3-5, 8-9, 27-30 are rejected under 35 U.S.C. 103(a) as being unpatentable over WO 00/21647.

With respect to claim 1, WO 00/21647 discloses an apparatus comprising: three operational units including: an oxidation catalyst 14, a particle separator 16 and a NOx adsorption catalyst 28 (page 3, line 17 to page 4, line 2).

Although WO 00/21647 includes other elements, such as a catalyst 30, it would have been obvious to one having ordinary skill in the art to eliminate the catalyst 30 of WO 00/21647 to reduce the cost of an additional unit while producing a system which is capable of performing

the same functions since the system already contains a catalyst in the oxidation catalyst 14, or in the adsorption catalyst 28.

With respect to the specific arrangement of the units in claims 1, 3-4, it would have been obvious to one skilled in the art at the time of the invention was made to select an appropriate arrangement for the units since positioning the parts of the apparatus is no more than a design choice, and well within the knowledge of one skilled in the art so as to achieve the purification attendant therewith, absence showing any unexpected results and since it has been held that rearranging parts of an invention involves only routine skill in the art. *In re Japikse*, 86 USPQ 70.

It should be noted that where the only difference between the prior art and the claims is a recitation of a specific arrangement of the units, and the units having the claimed elements would not perform differently than the prior art device, the claimed device is not patentably distinct from the prior art device.

With respect to claim 5, WO 00/21647 discloses a connecting channel 10.

With respect to claim 8, WO 00/21647 discloses that oxidation catalyst is disposed in the same structure with the separator (page 3, lines 6-15).

With respect to claim 9, WO 00/21647 discloses that the oxidation catalyst contains precious catalyst metal, such as platinum catalytic metal (page 4, lines 1-11, claim 5).

With respect to claims 27, 28, WO 00/21647 discloses that the particle separator 16 also contains catalysts, such as Pt, La (page 3, lines 6-11) which are considered as oxidation catalyst and NOx adsorption catalyst.

With respect to claim 30, the NOx adsorption catalyst in WO 00/21647 further includes a precious catalyst which is effective to promote conversion of HC and CO.

6. Claims 6-7, 10, 13, 21, 31, 32 are rejected under 35 U.S.C. 103(a) as being unpatentable over WO 00/21647 in view of Shinzawa et al (4,887,427) or DE 3,518,756.

With respect to claims 6, 7, 10, 31, 32, the apparatus of WO 00/21647 is substantially the same as that of the instant claims, but is silent as to whether each adsorbent is arranged in an exhaust discharge line of each cylinder of the engine and the discharge line being connected to a connecting channel containing the separator and the oxidation catalyst.

However, Shinzawa et al and DE 3,518,756 disclose provision of each exhaust discharge line of each cylinder of the engine has catalyst filter.

It would have been obvious to one having ordinary skill in the art at the time the invention was made to arrange a set of operational units in each exhaust discharge line of each cylinder of the engine as taught by either Shinzawa et al or DE 3,518,756 so as to enhance the purification of the system thereof.

With respect to claims 13, 21, WO 00/21647 discloses that the adsorption catalyst comprises platinum and at least one element selected from compounds of alkali metals (Li, Na, etc.), alkaline earth metals (Ba, Ca, etc.) and transition metals (page 3, line 17 to page 4, line 2, claim 2).

7. Claim 11 is rejected under 35 U.S.C. 103(a) as being unpatentable over WO 00/21647 in view of Shinzawa et al (4,887,427) or DE 3,518,756 as applied to claim 10 above and further in view of EP 758,713.

With respect to claim 11, since these claims are directed to method limitations which are of no patentable moment in apparatus claims, the modified apparatus of WO 00/21647 structurally meets these claims.

In any event, EP 758,713 discloses provision of regeneration of the NOx adsorption catalyst by periodically using a lean mixture and a rich mixture (col. 8, line 3 to col. 9, line 12; col. 10, lines 4-6, etc.)

It would have been obvious to one having ordinary skill in the art to alternately regenerate the NOx adsorption catalyst by periodically using a lean mixture and a rich mixture as taught by EP 758,713 in the modified apparatus of WO 00/21647 so as to reuse the adsorption catalyst.

8. Claims 1, 3-5, 8-9, 11, 27-30 are rejected under 35 U.S.C. 103(a) as being unpatentable over EP 758,713.

With respect to claims 1, 3-4, 29, EP 758,713 discloses an apparatus consisting of three operational units including: an oxidation catalyst 5, a particle separator 7 and an NOx adsorption catalyst 9.

The apparatus of EP 758,713 is substantially the same as that of the instant claims, but fails to disclose a specific arrangement of the three units as claimed.

However, it would have been obvious to one skilled in the art at the time of the invention was made to select an appropriate arrangement for the units since positioning the parts of the apparatus is no more than a design choice, and well within the knowledge of one skilled in the art so as to achieve the purification attendant therewith absence showing any unexpected results

and since it has been held that rearranging parts of an invention involves only routine skill in the art. *In re Japikse*, 86 USPQ 70.

With respect to claim 5, EP 758,713 discloses a connecting channel 3 (col. 3, lines 54-58).

With respect to claim 8, EP 758,713 discloses that oxidation catalyst is disposed in the same structure with the separator (page 5, lines 22-43).

With respect to claim 9, EP 758,713 discloses that the oxidation catalyst contains precious catalyst metal, such as platinum catalytic metal (page 4, lines 50-59).

With respect to claim 11, EP 758,713 discloses provision of regeneration of the NOx adsorption catalyst by periodically using a lean mixture and a rich mixture (col. 8, line 3 to col. 9, line 12; col. 10, lines 4-6, etc.)

With respect to claims 27, 28, EP 758,713 discloses that the particle separator 7 also contains catalysts, such as Pt (page 5, lines 22-43) which are considered as oxidation catalyst and NOx adsorption catalyst.

With respect to claim 30, the NOx adsorption catalyst in EP 758,713 further includes a precious catalyst which is effective to promote conversion of HC and CO (page 4, lines 56-58).

9. Claims 6-7, 10, 13, 21, 31-32 are rejected under 35 U.S.C. 103(a) as being unpatentable over EP 758,713 as applied to claims 1, 3-5, 8-9, 11, 27-30 above and further in view of Shinzawa et al (4,887,427) or DE 3,518,756.

The same comments with respect to Shinzawa and DE 3,518,756 apply.

With respect to claims 13, 21, EP 758,713 further discloses that the adsorption catalyst comprises platinum and at least one element selected from compounds of alkali metals (Li, Na, etc.), alkaline earth metals (Ba, Ca, etc.) (page 5, lines 44-57).

Response to Arguments

10. Applicant's arguments filed 11/24/04 have been fully considered but they are not persuasive.

Applicant argues that the WO 00/21647 reference discloses fourth catalyst units arranged in different arrangement which are not "three operational units" as recited in the instant claims. Such contention is not persuasive as instant claim 1 contains the phrase of "consisting of" (close language) in combination with "including" (open language) which causes ambiguity, therefore it is unclear as to what applicant is attempting to recite, whether other catalysts can be included based on the open language of "including", etc. and also it is unclear as to whether the three units now become two units since the NOx adsorption catalyst and the oxidation catalyst are combined into one structure. Furthermore, although WO 00/21647 includes other elements, such as a catalyst 30, it would have been obvious to one having ordinary skill in the art to eliminate the oxidation catalyst 30 of WO 00/21647 to reduce the cost of an additional unit while producing a system which is capable of performing the same functions since the system already contains a catalyst in the oxidation catalyst 14 or in the NOx adsorption catalyst 28.

Applicant argues that the three-way catalyst of WO '647 is not suitable for oxidation of NO to NO_2. Such contention is not persuasive as both WO '647 and the instant invention disclose the same precious catalyst and therefore possesses the same properties. Furthermore,

WO '647 discloses that the three-way catalyst, such as Pt, is for converting NO to NO2 (abstract, page 2, lines 29-31).

Applicant's arguments with respect to Shinzawa et al, DE '756 and EP '713 regarding the arrangement of the units are noted. However, such arrangement of the units and/or the elimination of one unit in the primary WO reference have been discussed above.

Conclusion

11. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

12. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Hien Tran whose telephone number is (571) 272-1454. The examiner can normally be reached on Tuesday-Friday from 7:30AM-6:00PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Glenn Caldarola can be reached on (571) 272-1444. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Hien Tran

Hien Tran
Primary Examiner
Art Unit 1764

HT
February 17, 2005